

Economics 471: Econometrics
Department of Economics, Finance and Legal Studies
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Problem Set #5

1. The following three equations can be estimated using the 1,534 observations in 401K.RAW

$$prate = 80.29 + 5.44mrate + 0.269age - 0.00013totemp$$

$$prate = 97.32 + 5.02mrate + 0.314age - 2.26 \ln(totemp)$$

$$prate = 80.62 + 5.34mrate + 0.290age - 0.00043totemp + 0.0000000039totemp^2$$

- (a) Replicate the results.
(b) Which of these three models do you prefer? Why?
2. Use the data in GPA2.RAW for this exercise.

- (a) Estimate the model

$$sat = \alpha + \beta_1 hsize + \beta_2 hsize^2 + u$$

where *hsize* is the size of the graduating class (in hundreds). Is the quadratic term statistically significant?

- (b) Using the estimated equation in part (a), what is the optimal high school size? Justify your answer.
(c) Is this analysis representative of the academic performance of all high school seniors? Explain.
(d) Find the estimated optimal high school size, using $\ln(sat)$ as the dependent variable. Is it much different from what you obtained in part (b)?